

ANIRBAN GHOSH

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Personal Information

Date of Birth: 31 May 1995

Nationality: Indian

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Summary

Mechanical Engineer with 5+ years of industry experience in mechanical design and new product development, now specializing in turbulent combustion, heat transfer analysis, and numerical modeling. Combining strong academics with hands-on experience, I bring quick adaptability, research-driven problem-solving, and seamless collaboration with interdisciplinary teams. My unique background in both mechanical design and computational modeling allows me to merge practical industry insights with cutting-edge computational analysis to develop optimized sustainable solutions.

Technical Skills

Core Competency: CFD, Combustion Modelling, HPC, Radiation modelling, CAD, DFMEA, NPD

CAE Softwares: Ansys CFX, Ansys Fluent, SU2, Cantera, Openfoam, Hypermesh, Creo Simulate

CAD Software: NX CAD, AutoCad, Creo

Programming Tools: MATLAB, Python

PLM Tools: Windchill, Teamcenter

Work Experience

Bosch Thermotechniek

Feb 2025 – October 2025

Graduate Research Student

Deventer, NL

- Developing and validating turbulent flame speed closure (TFC) combustion model in open-source SU2 CFD software to enable cost-effective hydrogen combustion simulations while maintaining comparable accuracy to detailed chemistry models (e.g., ANSYS Fluent)
- Designed and executed validation test cases demonstrating 95% correlation with experimental flame data, verifying TFC model accuracy
- Resolved MPI-related parallel computing errors and implemented advanced numerical methods to enhance solver convergence and stability in high-performance computing environments.
- Developing model extensions of TFC for non-adiabatic wall interactions and compressible flow dynamics to enable high-fidelity simulation of turbulent hydrogen combustion across all regimes, including deflagration waves and detonation front propagation.

Royal Kaak Food Processing

November 2024 – January 2025

R&D Intern

Terborg, NL

- Researched heat transfer mechanisms in industrial baking ovens, analyzing steam injection effects to optimize thermal efficiency and minimize energy loss.
- Developed an analytical heat transfer model using advanced radiation theory and hand calculations to predict oven performance.
- Built a Python-based thermal model to quantify steam's heat absorption during baking, improving process understanding.
- Conducted 3D conjugate heat transfer simulations in ANSYS Fluent using discrete ordinate (DO) and surface-to-surface (S2S) radiation models to validate and benchmark the accuracy of Python-based analytical heat transfer models.

CEAT Tyres Limited

January 2021 – July 2023

Assistant Manager, Design R&D

Gujarat, India

- Spearheaded new product development for radial truck and bus tires across India, Europe, and U.S. markets by conducting market surveys, competitive benchmarking through reverse engineering, and desk research - ensuring designs met regional safety standards while aligning with market trends and customer requirements.
- Created detailed tire designs (cavity profiles, tread patterns) and manufacturing drawings, applying pattern optimization to reduce noise while enhancing comfort and meeting regulations.
- Performed DFMEA and Fault Tree Analysis to anticipate material failures, while applying PDCA cycles and customer requirement mapping to systematically resolve development challenges - improving both process efficiency and product reproducibility.

- Created a market-specific defense groove solution that enhanced tire durability by 30% and optimized wear performance for the USA market.

L&T Technology Services

November 2017 – January 2021

Design Engineer

Gujarat, India

- Designed and drafted sheet metal components for mining applications, ensuring structural integrity and manufacturability, while conducting FEA simulations in CREO Simulate to assess durability and performance.
- Performed CAD clean-up activities in CREO to identify and eliminate design defects, enhancing model accuracy and manufacturability.
- Created engineering routing documents of all vehicle system modules of the On-road and Off-road vehicles, executed clearance study of routing with all affecting systems with special focus on exhaust and HVAC systems

Education

University of Twente

September 2023 - October 2025

Master of Science in Mechanical Engineering

- Specialization in Energy and Flow
- Scholarship Holder

SRM University, India

July 2013 – June 2017

Bachelor of Technology in Mechanical Engineering

- CGPA: 9.4/10
- Graduated as the top-ranked student in class

Patent

Twin Tread Technology for TBR

Filed in April 2022

Filing number 202221025301

- Developed dual-tread tire technology which can be used in all axles of commercial vehicles, delivering 40% cost reduction and 50% longer lifespan.

Publications

Tyre-Road Interaction Noise Prediction: A Simulation-Based Approach

SAE, June 2022

- Co-authored a research paper on a simulation-based approach for predicting tyre-road interaction noise using structural and acoustic FEA, contributing to the development of low-noise tyre designs.

Advanced fuel injector design and modelling in IC engines to reduce exhaust gas emissions

IRJET, June 2022

- Co-authored a research paper proposing an innovative fuel injector design that enhances air-fuel mixing, utilizing CFD simulations to optimize performance, leading to significant reductions in NOx, CO, and HC emissions.

About Me

Languages: Proficient in English (IELTS score 8.0), Dutch (A0)- Open to learn and adapt

Hobbies: Reading books, playing table tennis, painting

- * Awarded best designer in the region of 20 clubs by Toastmasters International for outstanding poster design.
- * Ranked in the top 7 out of 7000 teams at L&T Techgium 2017 (national level technical competition in India) for demonstrating POC on “Heating and refrigeration system using the waste heat energy of car exhaust pipes.”
- * Received the Academic Excellence Award for three consecutive years for achieving the highest rank in class during bachelor’s studies.
- * First Runner-Up at the regional level of the India Skills Competition, Bengaluru, India (2016) in Mechatronics, for designing a modular production system using PLC and pneumatic systems.
- * Winner of paper presentation at Cognizance, IIT Roorkee, India(2015) for presentation on “Alternate energy sources.”